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Air Permit No. PSD-FL-400
Air Permit No. 0970043-014-AC
Cane Island Power Park
Combined Cycle Unit 4
Osceola County, Florida
Expires: August 31, 2012

PROJECT AND LOCATION

This permit authorizes the construction of a nominal 300 megawatts (MW) natural gas-fueled combined cycle unit (Unit 4) at the existing Cane Island Power Park. The project consists of: a nominal 150 MW General Electric 7FA combustion turbine-electrical generator; a duct fired heat recovery steam generator; a nominal 150 MW steam-electrical generator; a nominal 160-foot stack; a mechanical draft cooling tower with drift eliminators; and two diesel engines with ultralow sulfur diesel fuel oil storage tanks.

The facility is located at 6075 Old Tampa Highway, Intercession City in Osceola County. The UTM coordinates for this site are 447.5 km East and 3128.0 North.

STATEMENT OF BASIS

This air pollution construction permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.), and Chapters 62-4, 62-204, 62-210, 62-212, 62-296 and 62-297 of the Florida Administrative Code (F.A.C.) and Title 40, Parts 60 and 63 of the Code of Federal Regulations (CFR). The permittee is authorized to install the proposed equipment in accordance with the conditions of this permit and as described in the application, approved drawings, plans, and other documents on file with the Department.

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Joseph Kahn, Director
Division of Air Resource Management

9/5/08
(Date)

FACILITY AND PROJECT DESCRIPTION

The existing Cane Island Power Park (CIPP) facility consists of:

- Unit 1 – a 40 megawatts (MW) simple cycle combustion turbine-electric generator (CTG);
- Unit 2 - a 120 MW combined cycle unit including a CTG, a heat recovery steam generator (HRSG) and steam turbine –electric generator (STG); and
- Unit 3 - a 250 MW combined cycle unit including a CTG, HRSG and STG.

The project will be a "one-on-one" 300 MW natural gas-fueled combined cycle unit (CIPP Unit 4) and associated auxiliary equipment. Unit 4 and associated auxiliary equipment will consist of:

- A nominal 150 MW gas-fueled General Electric 7241 FA CTG;
- A supplementary-fired HRSG with natural gas fueled duct burners (DB);
- A nominal 150 MW STG;
- A nominal 160-foot stack;
- An emergency diesel engine fire pump and small ultralow sulfur diesel (ULSD) fuel oil (FO)storage tank;
- A nominal 750 kilowatts (kW) safe shutdown diesel generator with a ULSD FO storage tank; and
- A mechanical draft cooling tower with drift eliminators.

EMISSIONS UNITS

This permit authorizes construction and installation of the following new emissions units:

EU ID NO.	EMISSION UNIT DESCRIPTION
009	Unit 4 is comprised of: a nominal 150 MW natural gas-fueled General Electric 7FA CTG equipped with evaporative inlet air cooling equipment; a supplementary-fired HRSG with a nominal 600 million Btu per hour (mmBtu) DB; a HRSG stack; and a nominal 150 MW STG.
010	Emergency fire pump diesel engine and ULSD fuel oil storage tank.
011	Diesel electric generator for safe shutdown of Unit 4 and ULSD FO storage tank.
012	An eight-cell mechanical cooling tower with individual exhaust fans and drift eliminators.

REGULATORY CLASSIFICATION

The facility is a major Prevention of Significant Deterioration (PSD) stationary source in accordance with Rule 62-212.400, F.A.C. Unit 4 is subject to the PSD rules including a determination of best available control technology (BACT).

The facility is a Title V major source of air pollution in accordance with Chapter 213, Florida Administrative Code (F.A.C.).

The facility operates existing units subject to the Acid Rain provisions of Title IV of the Clean Air Act (CAA).

The facility operates units subject to the Standards of Performance for New Stationary Sources (NSPS) pursuant to 40 CFR Part 60. Unit 4 is subject to 40 CFR 60, Subpart KKKK – NSPS for Stationary Combustion Turbines that Commence Construction after February 18, 2005. This rule also covers DB burners that are incorporated into combined cycle projects. The emergency fire pump diesel engine and the safe shutdown diesel generator are subject to 40 CFR 60, Subpart IIII – NSPS for Stationary Compression Ignition Internal Combustion Engines.

The existing facility is a major source of hazardous air pollutants (HAP). Unit 4 is potentially subject to 40 CFR 63, Subpart YYYY - National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Combustion Turbines. The applicability of this rule has been stayed for lean premix and diffusion flame gas-fired combustion turbines such as planned for this project. The safe shutdown diesel generator is subject only to the initial notification requirements of 40 CFR 60, Subpart ZZZZ – NESHAP for Stationary Reciprocating Internal Combustion Engines.

The facility is subject to the Federal Clean Air Interstate Rule (CAIR) in accordance with the Department's final rule at Section 62-296.470, F.A.C.

The facility operates units that were certified under the Florida Power Plant Siting Act (FPPSA), 403.501-518, F.S. (Unit 4 is also subject to the requirements of the FPPSA).

RELEVANT DOCUMENTS

The following relevant documents are not a part of this permit, but helped form the basis for this permitting action: the permit application and additional information received to make it complete; the draft air construction permit; and the Department's Technical Evaluation and Preliminary Determination.

SECTION II. ADMINISTRATIVE REQUIREMENTS

1. Permitting Authority: The Permitting Authority for this project is the Bureau of Air Regulation in the Division of Air Resource Management of the Department. The mailing address for the Bureau of Air Regulation is 2600 Blair Stone Road, MS #5505, Tallahassee, Florida 32399-2400.

2. Compliance Authority: All documents related to compliance activities such as reports, tests, and notifications shall be submitted to the Central District Office. The mailing address and phone number of the Central District Office are: Department of Environmental Protection, Central District Office, 3319 Maguire Boulevard, Suite 232, Orlando Florida 32803-3767. Telephone: (407)894-7555. Fax: (407)897-5963.

3. Appendices: The following Appendices are attached as part of this permit: Appendices A, BD, GC (General Conditions), IIII, KKKK, SC, XS, YYYY and ZZZZ.

4. Applicable Regulations, Forms and Application Procedures: Unless otherwise specified in this permit, the construction and operation of the subject emissions units shall be in accordance with the capacities and specifications stated in the application. The facility is subject to all applicable provisions of: Chapter 403, F.S.; and Chapters 62-4, 62-204, 62-210, 62-212, 62-213, 62-214, 62-296, and 62-297, F.A.C. Issuance of this permit does not relieve the permittee from compliance with any applicable federal, state, or local permitting or regulations.

5. New or Additional Conditions: For good cause shown and after notice and an administrative hearing, if requested, the Department may require the permittee to conform to new or additional conditions. The Department shall allow the permittee a reasonable time to conform to the new or additional conditions, and on application of the permittee, the Department may grant additional time. [Rule 62-4.080, F.A.C.]

6. Modifications: No emissions unit shall be constructed or modified without obtaining an air construction permit from the Department. Such a permit shall be obtained prior to beginning construction or modification. [Rules 62-210.300(1) and 62-212.300(1)(a), F.A.C.]

7. Construction and Expiration: The permit expiration date includes sufficient time to complete construction, perform required testing, submit test reports, and submit an application for a Title V operation permit to the Department. Approval to construct shall become invalid for any of the following reasons: construction is not commenced within 18 months after issuance of this permit; construction is discontinued for a period of 18 months or more; or construction is not completed within a reasonable time. The Department may extend the 18-month period upon a satisfactory showing that an extension is justified. In conjunction with an extension of the 18-month period to commence or continue construction (or to construct the project in phases), the Department may require the permittee to demonstrate the adequacy of any previous determination of BACT for emissions units regulated by the project. For good cause, the permittee may request that this PSD air construction permit be extended. Such a request shall be submitted to the Department's Bureau of Air Regulation at least sixty (60) days prior to the expiration of this permit.
[Rules 62-4.070(4), 62-4.080, 62-210.300(1), and 62-212.400(6)(b), F.A.C.]

8. Title V Permit: This permit authorizes specific modifications and/or new construction on the affected emissions units as well as initial operation to determine compliance with conditions of this permit. A Title V operation permit is required for regular operation of the permitted emissions unit. The permittee shall apply for a Title V operation permit at least 90 days prior to expiration of this permit, but no later than 180 days after completing the required work and commencing operation. To apply for a Title V operation permit, the applicant shall submit the appropriate application form, compliance test results, and such additional information as the Department may by law require. The application shall be submitted to the Bureau of Air Regulation with copies to the Compliance Authority.
[Rules 62-4.030, 62-4.050, 62-4.220, and Chapter 62-213, F.A.C.]

SECTION III - EMISSIONS UNITS SPECIFIC CONDITIONS

A. Combined Cycle Unit 4 (EU 009)

This section of the permit addresses the following emissions unit.

EU ID NO.	EMISSION UNIT DESCRIPTION
009	Unit 4 is comprised of: a nominal 150 MW natural gas-fueled General Electric 7FA CTG equipped with evaporative inlet air cooling equipment; a supplementary-fired HRSG with a nominal 600 mmBtu/hr DB; a HRSG stack; and a nominal 150 MW STG.

Applicable Standards and Regulations

1. BACT Determinations: The emission unit addressed in this section is subject to a BACT determination for carbon monoxide (CO), nitrogen oxides (NO_X), particulate matter (PM/PM_{10}), sulfuric acid mist (SAM), and sulfur dioxide (SO_2). [Rule 62-212.400, F.A.C.]

2. NSPS Requirements: The combustion turbine shall comply with all applicable requirements of 40 CFR 60, listed below, adopted by reference in Rule 62-204.800(7)(b), F.A.C. The Department determines that compliance with the BACT emissions performance requirements also assures compliance with the NSPS for Subpart KKKK. Some separate reporting and monitoring may be required by these subparts.

   (a) Subpart A, General Provisions, including:

   - 40 CFR 60.7, Notification and Record Keeping
   - 40 CFR 60.8, Performance Tests
   - 40 CFR 60.11, Compliance with Standards and Maintenance Requirements
   - 40 CFR 60.12, Circumvention
   - 40 CFR 60.13, Monitoring Requirements
   - 40 CFR 60.19, General Notification and Reporting Requirements

   (b) Subpart KKKK, Standards of Performance for Stationary Gas Turbines: These provisions include standards for combustion gas turbines and duct burners.

Equipment

3. CTG: The permittee is authorized to install, tune, operate, and maintain one natural gas-fueled GE Model 7FA CTG with a nominal generating capacity of 150 MW. The CTG will be equipped with Dry Low NO_x (DLN) combustors and an inlet air filtration system with evaporative coolers. The unit shall be equipped with the Speedtronic™ Mark VI (or more recent version) automated gas turbine control system. [Application and Design]

4. HRSG: The permittee is authorized to install, operate, and maintain one HRSG with a HRSG exhaust stack. The HRSG shall be designed to recover heat energy from the gas turbine and deliver steam to the steam turbine electrical generator with a nominal generating capacity of 150 MW. The HRSG will be equipped with a supplemental gas-fired DB having a nominal heat input rate of 600 mmBtu (High Heating Value or HHV). [Application]

Control Technology

5. DLN Combustion: The permittee shall operate and maintain the GE DLN 2.6 combustion system (or more recent upgrade) to control NO_X emissions from the CTG. Prior to the initial emissions performance tests required for the gas turbine, the DLN combustors and automated gas turbine control system shall be tuned to achieve the permitted levels for CO and sufficiently low NO_X values to meet the NO_X limits with the additional SCR control technology described below. Thereafter, the system shall be maintained and tuned in accordance with the manufacturer's recommendations.

6. Selective Catalytic Reduction (SCR) System: The permittee shall install, tune, operate, and maintain an SCR system to control NO_X emissions from the CTG and DB. The SCR system consists of an ammonia (NH_3) injection grid, catalyst, ammonia storage, monitoring and control system, electrical, piping and other ancillary equipment. The SCR system shall be designed, constructed and operated to achieve the permitted levels for NO_X and NH_3 emissions. In accordance with 40 CFR 68.130, the storage of ammonia shall comply with all applicable requirements of the Chemical Accident Prevention Provisions in 40 CFR 68. [Design and Rule 62-212.400(BACT), F.A.C.]

PERFORMANCE RESTRICTIONS

7. Capacity – CTG: The nominal heat input rating of the CTG is 1,860 mmBtu per hour based on a compressor inlet air temperature of 59 °F, International Organization for Standardization (ISO) conditions, the HHV of natural gas and 100% load. Heat input rates will vary depending upon gas turbine characteristics, ambient conditions, alternate methods of operation, and evaporative cooling. The permittee shall provide manufacturer's performance curves (or equations) that correct for site conditions to the Permitting and Compliance Authorities within 45 days of completing the initial compliance testing. Operating data may be adjusted for the appropriate site conditions in accordance with the performance curves and/or equations on file with the Department.
[Rule 62-210.200(Definitions – Potential to Emit), F.A.C.]

8. Capacity - DB: The nominal heat input rating of the DB located within the HRSG is 600 mmBtu per hour based on the HHV of natural gas. Only natural gas shall be fired in the DB.
[Rule 62-210.200(Definitions – Potential to Emit), F.A.C.]

9. Hours of Operation: The CTG and the DB may operate throughout the year (8760 hours per year).
[Rules 62-210.200(Definitions - PTE) and 62-212.400 (BACT), F.A.C.]

10. Authorized Fuel: The CTG turbine shall fire only natural gas, which shall contain no more than 2 grains (gr) of sulfur per 100 standard cubic feet (SCF) of natural gas.
[Rules 62-210.200(PTE) and 62-212.400 (BACT), F.A.C.]

11. Methods of Operation: Subject to the restrictions and requirements of this permit, the gas turbine may operate under the following methods of operation.
    a. *Combined Cycle Operation*: The CTG/HRSG system may operate to produce direct, shaft-driven electrical power and steam-generated electrical power from the steam turbine-electrical generator as a combined cycle unit subject to the restrictions of this permit. In accordance with the specifications of the SCR and HRSG manufacturers, the SCR system shall be on line and functioning properly during combined cycle operation or when the HRSG is producing steam.
    b. *Pseudo Simple Cycle Operation*: The CTG/HRSG system may operate in a pseudo simple cycle mode whereby steam from the HRSG bypasses the steam turbine-electrical generator and is dumped directly to the condenser. The same emission limits apply as when operating in combined cycle mode.
    c. *Evaporative Cooling*: Evaporative cooling is the injection of fine water droplets into the gas turbine compressor inlet air, which reduces the gas temperature through evaporative cooling. Lower compressor inlet temperatures result in a more mass flow rate through the gas turbine with a boost in electrical power production. The emissions performance remains within the normal profile of the gas turbine for the lower compressor inlet temperatures. Evaporative cooling will be implemented at ambient temperatures of 60 °F or higher.
    d. *DB Firing*: The HRSG system may fire natural gas in the DB to provide additional steam-generated electrical power.

    [Application and Rules 62-210.200 (PTE) and 62-212.400 (BACT), F.A.C.]

A. Combined Cycle Unit 4 (EU 009)

Emissions Standards

12. Emission Standards: Emissions from the CTG/HRSG system shall not exceed the following standards.

Pollutant	Method of Operation	Initial and Annual Stack Test 3-Run Average		CEMS Average
		ppmvd @15% O_2	lb/hr [f]	ppmvd @ 15% O_2
CO [a]	CTG Normal	4.1	16.7	8.0, 24-hr block
	CTG & DB	7.6	40.8	
	All Modes	NA	NA	6.0, 12-month rolling
NO_X [b]	CTG Normal	2.0	13.4	2.0, 24-hr and 15, 30 days rolling[g]
	CTG & DB	2.0	17.6	
PM/PM_{10} [c]	All Modes	2 gr S/100 SCF of gas		
		Visible emissions shall not exceed 10% opacity for each 6-minute block average.		
SAM/SO_2 [d]	All Modes	2 gr S/100 SCF of gas		
Ammonia [e]	CTG, All Modes	5.0	NA	NA

a. Continuous compliance with the 24-hour CO standards shall be demonstrated based on data collected by the required continuous emissions monitoring system (CEMS). The initial and annual EPA Method 10 tests associated with the certification of the CEMS instruments shall also be used to demonstrate compliance with the individual standards for normal natural gas and the duct burner mode.

b. Continuous compliance with the 24-hr NO_X standards shall be demonstrated based on data collected by the required CEMS. The initial and annual EPA Method 7E or Method 20 tests associated with demonstration of compliance with 40 CFR 60, Subpart KKKK or certification of the CEMS instruments shall also be used to demonstrate compliance with the individual standards for normal natural gas and duct burner modes during the time of those tests. NO_X mass emission rates are defined as oxides of nitrogen expressed as nitrogen dioxide (NO_2).

c. The sulfur fuel specification combined with the efficient combustion design and operation of the gas turbine represents BACT for PM/PM_{10} emissions. Compliance with the fuel specifications, CO standards, and visible emissions standards shall serve as indicators of good combustion. Compliance with the fuel specifications shall be demonstrated by keeping records of the fuel sulfur content. Compliance with the visible emissions standard shall be demonstrated by conducting tests in accordance with EPA Method 9.

d. The fuel sulfur specification effectively limits the potential emissions of SAM and SO_2 from the gas turbines and represents BACT for these pollutants. Compliance with the fuel sulfur specifications shall be determined by the ASTM methods for determination of fuel sulfur or by fuel supplier/vendor reports as detailed in the draft permit.

e. Compliance with the ammonia slip standard shall be demonstrated by conducting tests in accordance with EPA Method CTM-027 or EPA Method 320.

f. The mass emission rate standards are based on a turbine inlet condition of 59 °F, evaporative cooling on, and using the HHV of the fuel. Mass emission rate may be adjusted to actual test conditions in accordance with the performance curves and/or equations on file with the Department.

g. Compliance with the 40 CFR 60, NSPS, Subpart KKKK as described in 60.4380(b)(1).

[Rule 62-212.400 (BACT), F.A.C.]

Excess Emissions

{Permitting Note: The following conditions apply only to the SIP-based emissions standards specified in Condition No. 12 of this section. Rule 62-210.700, F.A.C. (Excess Emissions) cannot vary or supersede any federal provision of the NSPS, or Acid Rain programs.}

13. Operating Procedures: BACT determinations established by this permit rely on "good operating practices" to reduce emissions. Therefore, all operators and supervisors shall be properly trained to operate and ensure maintenance of the CTG, DB, HRSG, and pollution control systems in accordance with the guidelines and procedures established by each manufacturer. The training shall include good operating practices as well as methods for minimizing excess emissions.
[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

14. Definitions:

    a. *Startup* is defined as the commencement of operation of any emissions unit which has shut down or ceased operation for a period of time sufficient to cause temperature, pressure, chemical or pollution control device imbalances, which result in excess emissions. [Rule 62-210.200(245), F.A.C.]

    b. *Shutdown* is the cessation of the operation of an emissions unit for any purpose.
    [Rule 62-210.200(230), F.A.C.]

    c. *Malfunction* is defined as any unavoidable mechanical and/or electrical failure of air pollution control equipment or process equipment or of a process resulting in operation in an abnormal or unusual manner. [Rule 62-210.200(159), F.A.C.]

15. Excess Emissions Prohibited: Excess emissions caused entirely or in part by poor maintenance, poor operation or any other equipment or process failure that may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. All such preventable emissions shall be included in any compliance determinations based on CEMS data. [Rule 62-210.700(4), F.A.C.]

16. Alternate Visible Emissions Standard: Visible emissions due to startups, shutdowns, and malfunctions shall not exceed 10% opacity except for up to ten, 6-minute averaging periods during a calendar day, which shall not exceed 20% opacity. [Rule 62-212.400(BACT), F.A.C.]

17. Excess Emissions Allowed: Excess emissions resulting from startup, shutdown, and documented malfunctions shall be permitted, provided that operators employ the best operational practices to minimize the amount and duration of emissions during such incidents. For the CTG/HRSG system, excess emissions of NO_X and CO emissions resulting from startup, shutdown, or documented malfunctions shall not exceed the following specified time periods in any 24-hour period (for the purposes of this condition, "any 24-hour period" means a calendar day, midnight to midnight).

    a. *STG/HRSG System Cold Startup:* For cold startup of the STG/HRSG system, excess NO_X and CO emissions from the CTG/HRSG system shall not exceed six hours in any 24-hour period. A "cold startup of the STG/HRSG system" is defined as startup of the combined cycle system following a shutdown of the steam turbine lasting at least 48 hours.

    {Permitting Note: During a cold startup of the steam turbine system, the CTG/HRSG system is brought on line at low load to gradually increase the temperature of the STG and prevent thermal metal fatigue.}

    b. *STG/HRSG System Warm Startup:* For warm startup of the STG/HRSG system, excess NO_X and CO emissions shall not exceed four hours in any 24-hour period. A "warm startup of the STG/HRSG system" is defined as a startup of the combined cycle system following a shutdown of the steam turbine lasting at least 8 hours and less than 48 hours.

c. *STG/HRSG System Hot Startup*: For hot startup of the STG/HRSG system, excess NO_X and CO emissions shall not exceed two hours in any 24-hour period. A "hot startup of the STG/HRSG system" is defined as a startup of the combined cycle system following a shutdown of the steam turbine lasting less than 8 hours.

d. *Shutdown:* For shutdown of the combined cycle operation, excess NO_X and CO emissions from the CTG/HRSG system shall not exceed three hours in any 24-hour period.

e. *Documented Malfunction:* For the CTG/HSRG system, excess emissions of NO_X and CO resulting from documented malfunctions shall not exceed two hours in any 24-hour period. A "documented malfunction" means a malfunction that is documented within one working day of detection by contacting the Compliance Authority by telephone, facsimile transmittal, or electronic mail.

18. Ammonia Injection: Ammonia injection shall begin as soon as operation of the CTG/HRSG system achieves the operating parameters specified by the manufacturer. As authorized by Rule 62-210.700(5), F.A.C., the above condition allows excess emissions only for specifically defined periods of startup, shutdown, fuel switching, and documented malfunction of the CTG/HRSG system including the pollution control equipment. [Design; Rules 62-212.400(BACT) and 62-210.700, F.A.C.]

19. DLN Tuning: CEMS data collected during initial or other major DLN tuning sessions shall be excluded from the CEMS compliance demonstration provided the tuning session is performed in accordance with the manufacturer's specifications. A "major tuning session" would occur after completion of initial construction, a combustor change-out, a major repair or maintenance to a combustor, or other similar circumstances. Prior to performing any major tuning session, the permittee shall provide the Compliance Authority with an advance notice of at least 14 days that details the activity and proposed tuning schedule. The notice may be by telephone, facsimile transmittal, or electronic mail. [Design; Rule 62-4.070(3), F.A.C.]

Emissions Performance Testing

20. Test Methods: Required tests shall be performed in accordance with the following reference methods.

Method	Description of Method and Comments
CTM-027 or 320	Procedure for Collection and Analysis of Ammonia in Stationary Source. {Notes: This is an EPA conditional test method. The minimum detection limit shall be 1 ppm.} Measurement of Vapor Phase Organic and Inorganic Emissions by Extractive Fourier Transform Infrared (FTIR) Spectroscopy
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Notes: The method shall be based on a continuous sampling train. The ascarite trap may be omitted or the interference trap of section 10.1 may be used in lieu of the silica gel and ascarite traps.}
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines

No other methods may be used for compliance testing unless prior written approval is received from the administrator of the Department's Emissions Monitoring Section in accordance with an alternate sampling procedure pursuant to 62-297.620, F.A.C.
[Rules 62-204.800 and 62-297.100, F.A.C.; 40 CFR 60, Appendix A]

21. Initial Compliance Determinations: The CTG shall be stack tested to demonstrate initial compliance with the emission standards for CO, NO_X, visible emissions, and ammonia slip. The tests shall be conducted within 60 days after achieving the maximum production rate at which the unit will be operated, but not later than 180 days after the initial startup. The unit shall be tested when firing natural gas and when using the duct burners. For each run during tests for visible emissions and ammonia slip, emissions of CO and NO_X recorded by the CEMS shall also be reported. NO_X and CO emissions data collected during the required continuous monitor Relative Accuracy Test Audits (RATAs) may be used to demonstrate initial compliance with the CO and NO_x standards. With appropriate flow measurements (or fuel measurements and approved F-factors), CEMS data may be used to demonstrate compliance with the CO and NO_X mass rate emissions standards. The Department may, for good reason, require the permittee to conduct additional tests after major replacement or major repair of any air pollution control equipment, such as the SCR catalyst, DLN combustors, etc.
[Rule 62-297.310(7)(a) and (b), F.A.C. and 40 CFR 60.8]

22. Annual Compliance Tests: During each federal fiscal year (October 1st, to September 30th), the CTG shall be tested to demonstrate compliance with the emission standard for visible emissions. NO_X and CO emissions data collected during the required continuous monitor RATA may be used to demonstrate compliance with the CO and NO_x standards. NO_X emissions recorded by the CEMS shall be reported for each ammonia slip test run. CO emissions recorded by the CEMS shall be reported for the visible emissions observation period. [Rules 62-212.400 (BACT) and 62-297.310(7)(a)4, F.A.C.]

23. Continuous Compliance: The permittee shall demonstrate continuous compliance with the 24-hour block and 12-month rolling average CO emissions standards and with the 24-hour block and 30 unit operating day rolling average NO_X emission standards based on data collected by the certified CEMS for each pollutant. Within 45 days of conducting any RATA on a CEMS, the permittee shall submit a report to the Compliance Authority summarizing results of the RATA. Compliance with the CO emission standards also serves as an indicator of efficient fuel combustion, which reduces emissions of particulate matter. [Rule 62-212.400 (BACT), F.A.C.]

24. Compliance for SAM, SO_2 and PM/PM_{10}: In stack compliance testing is not required for SAM, SO_2 and PM/PM_{10}. Compliance with the limits and control requirements for SAM, SO_2 and PM/PM_{10} is based on the recordkeeping required in Specific Condition 30, visible emissions testing and CO continuous monitoring. [Rule 62-212.400 (BACT), F.A.C.]

Continuous Monitoring Requirements

25. CEMS: The permittee shall install, calibrate, maintain, and operate CEMS to measure and record the emissions of CO and NO_X from the combined cycle gas turbine in a manner sufficient to demonstrate continuous compliance with the CEMS emission standards of this section. Each monitoring system shall be installed, calibrated, and properly functioning prior to the initial performance tests. Within one working day of discovering emissions in excess of a CO or NO_X standard (and subject to the specified averaging period), the permittee shall notify the Compliance Authority.

    a. *CO Monitor:* The CO monitor shall be certified pursuant to 40 CFR 60, Appendix B, Performance Specification 4 or 4A within 60 calendar days of achieving permitted capacity as defined in Rule 62-297.310(2), F.A.C., but no later than 180 calendar days after initial startup. Quality assurance procedures shall conform to the requirements of 40 CFR 60, Appendix F, and the Data Assessment Report of Section 7 shall be made each calendar quarter, and reported semiannually to the Compliance Authority. The RATA tests required for the CO monitor shall be performed using EPA Method 10 in Appendix A of 40 CFR 60 and shall be based on a continuous sampling train. The CO monitor span values shall be set appropriately, considering the allowable methods of operation and corresponding emission standards.

b. *NO_X Monitor:* The NO_X monitor shall be certified, operated, and maintained in accordance with the requirements of 40 CFR 75. Record keeping and reporting shall be conducted pursuant to Subparts F and G in 40 CFR 75. The RATA tests required for the NO_X monitor shall be performed using EPA Method 20 or 7E in Appendix A of 40 CFR 60.

c. *Diluent Monitor:* The oxygen (O_2) or carbon dioxide (CO_2) content of the flue gas shall be monitored at the location where CO and NO_X are monitored to correct the measured emissions rates to 15% oxygen. If a CO_2 monitor is installed, the oxygen content of the flue gas shall be calculated using F-factors that are appropriate for the fuel fired. Each monitor shall comply with the performance and quality assurance requirements of 40 CFR 75.

26. CEMS Data Requirements:

a. *Data Collection*: Emissions shall be monitored and recorded at all times including startup, operation, shutdown, and malfunction except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments. The CEMS shall be designed and operated to sample, analyze, and record data evenly spaced over an hour. If the CEMS measures concentration on a wet basis, the CEM system shall include provisions to determine the moisture content of the exhaust gas and an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Alternatively, the owner or operator may develop through manual stack test measurements a curve of moisture contents in the exhaust gas versus load, and use these typical values in an algorithm to enable correction of the monitoring results to a dry basis (0% moisture). Final results of the CEMS shall be expressed as ppmvd corrected to 15% oxygen. The CEMS shall be used to demonstrate compliance with the CEMS emission standards for CO and NO_X as specified in this permit. For purposes of determining compliance with the CEMS emissions standards of this permit, missing (or excluded) data shall not be substituted. Upon request by the Department, the CEMS emissions rates shall be corrected to ISO conditions.

b. *Valid Hour*: Hourly average values shall begin at the top of each hour. Each hourly average value shall be computed using at least one data point in each fifteen-minute quadrant of an hour, where the unit combusted fuel during that quadrant of an hour. Notwithstanding this requirement, an hourly value shall be computed from at least two data points separated by a minimum of 15 minutes (where the unit operates for more than one quadrant of an hour). If less than two such data points are available, the hourly average value is not valid. The permittee shall use all valid measurements or data points collected during an hour to calculate the hourly average values.

c. *24-hour Block Averages*: A 24-hour block shall begin at midnight of each operating day and shall be calculated from 24 consecutive hourly average emission rate values. If a unit operates less than 24 hours during the block, the 24-hour block average shall be the average of all available valid hourly average emission rate values for the 24-hour block. For purposes of determining compliance with the 24-hour CEMS standards, the missing data substitution methodology of 40 CFR Part 75, Subpart D, shall not be utilized. Instead, the 24-hour block average shall be determined using the remaining hourly data in the 24-hour block. [Rule 62-212.400(BACT), F.A.C.]

{Permitting Note: There may be more than one 24-hour compliance demonstration required for CO and NO_X emissions depending on the use of alternate methods of operation.}

d. *12-month Rolling Averages:* Compliance with the long-term emission limit for CO shall be based on a 12-month rolling average. Each 12-month rolling average shall be the arithmetic average of all valid hourly averages collected during the current calendar month and the previous 11 calendar months.

e. *30 unit operating day Rolling Average:* Compliance with this rolling average is as described in 40 CFR 60.4380(b)(1).

f. *Data Exclusion:* Each CEMS shall monitor and record emissions during all operations including episodes of startup, shutdown, malfunction and DLN tuning. Some of the CEMS emissions data recorded during these episodes may be excluded from the corresponding CEMS compliance demonstration subject to the provisions of Condition Nos. 15 and 17 of this section. All periods of data excluded shall be consecutive for each such episode and only data obtained during the described episodes (startup, shutdown, malfunction, DLN tuning) may be used for the appropriate exclusion periods. The permittee shall minimize the duration of data excluded for such episodes to the extent practicable. Data recorded during such episodes shall not be excluded if the episode was caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented. Best operational practices shall be used to minimize hourly emissions that occur during such episodes. Emissions of any quantity or duration that occur entirely or in part from poor maintenance, poor operation, or any other equipment or process failure, which may reasonably be prevented, shall be prohibited.

g. *Availability*: Monitor availability for the CEMS shall be 95% or greater in any calendar quarter. The quarterly excess emissions report shall be used to demonstrate monitor availability. In the event 95% availability is not achieved, the permittee shall provide the Department with a report identifying the problems in achieving 95% availability and a plan of corrective actions that will be taken to achieve 95% availability. The permittee shall implement the reported corrective actions within the next calendar quarter. Failure to take corrective actions or continued failure to achieve the minimum monitor availability shall be violations of this permit, except as otherwise authorized by the Department's Compliance Authority.

[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

27. Ammonia Monitoring Requirements: In accordance with the manufacturer's specifications, the permittee shall install, calibrate, operate and maintain an ammonia flow meter to measure and record the ammonia injection rate to the SCR system prior to the initial compliance tests. The permittee shall document and periodically update the general range of ammonia flow rates required to meet permitted emissions levels over the range of load conditions allowed by this permit by comparing NO_X emissions recorded by the CEM system with ammonia flow rates recorded using the ammonia flow meter. During NO_X monitor downtimes or malfunctions, the permittee shall operate at the ammonia flow rate that is consistent with the documented flow rate for the combustion turbine load condition.
[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

Records and Reports

28. Monitoring of Capacity: The permittee shall monitor and record the operating rate of the CTG and HRSG DB system on a daily average basis, considering the number of hours of operation during each day (including the times of startup, shutdown and malfunction). Such monitoring shall be made using a monitoring component of the CEM system required above, or by monitoring daily rates of consumption and heat content of the natural gas in accordance with the provisions of 40 CFR 75, Appendix D.
[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

29. Monthly Operations Summary: By the fifth calendar day of each month, the permittee shall record the following for the natural gas fuel in a written or electronic log for the gas turbine for the previous month of operation: fuel consumption, hours of operation, hours of duct firing, and the updated 12-month rolling totals for each. Information recorded and stored as an electronic file shall be available for inspection and printing within at least three days of a request by the Department. The fuel consumption shall be monitored in accordance with the provisions of 40 CFR 75, Appendix D.
[Rules 62-4.070(3) and 62-212.400(BACT), F.A.C.]

30. Fuel Sulfur Records: The permittee shall demonstrate compliance with the fuel sulfur limits specified in this permit by maintaining the reports obtained from the vendor indicating the average sulfur content of the natural gas being supplied from the pipeline for each month of operation. Methods for determining the sulfur content of the natural gas shall be ASTM methods D4084-82, D4468-85, D5504-01, D6228-98 and D6667-01, D3246-81 or more recent versions. These methods shall be used to determine the fuel sulfur content in conjunction with the provisions of 40 CFR 75 Appendix D.
[Rules 62-4.070(3) and 62-4.160(15), F.A.C.]

31. Emissions Performance Test Reports: A report indicating the results of any required emissions performance test shall be submitted to the Compliance Authority no later than 45 days after completion of the last test run. The test report shall provide sufficient detail on the tested emission unit and the procedures used to allow the Department to determine if the test was properly conducted and if the test results were properly computed. At a minimum, the test report shall provide the applicable information listed in Rule 62-297.310(8)(c), F.A.C. and in Appendix SC of this permit.
[Rule 62-297.310(8), F.A.C.]

32. Excess Emissions Reporting:

    a. *Malfunction Notification:* If emissions in excess of a standard (subject to the specified averaging period) occur due to malfunction, the permittee shall notify the Compliance Authority within (1) working day of: the nature, extent, and duration of the excess emissions; the cause of the excess emissions; and the actions taken to correct the problem. In addition, the Department may request a written summary report of the incident.

    b. *SIP Quarterly Permit Limits Excess Emissions Report:* Within 30 days following the end of each calendar quarter, the permittee shall submit a report to the Compliance Authority summarizing periods of CO and NO_X emissions in excess of the BACT permit standards following the NSPS format in 40 CFR 60.7(c), Subpart A. Periods of startup, shutdown and malfunction, shall be monitored, recorded and reported as excess emissions when emission levels exceed the standards specified in this permit. In addition, the report shall summarize the CEMS systems monitor availability for the previous quarter.

    c. *NSPS Semi-Annual Excess Emissions Reports*: Within thirty (30) days following each calendar semi-annual period, the permittee shall submit a report on any periods of excess emissions that occurred during the previous semi-annual period to the Compliance Authority.

    {Note: If there are no periods of excess emissions as defined in NSPS Subpart KKKK, a statement to that effect may be submitted with the SIP Quarterly Report to suffice for the NSPS Semi-Annual Report.}

    [Rules 62-4.130, 62-204.800, 62-210.700(6), F.A.C.; 40 CFR 60.7, and 60.332(j)(1)]

33. Annual Operating Report: The permittee shall submit an annual report that summarizes the actual operating hours and emissions from this facility. Annual operating reports shall be submitted to the Compliance Authority as required by Rule 62-210.370(2), F.A.C.

B. Emergency Diesel Fire Pump Engine

This section of the permit addresses the following emissions unit.

ID	Emission Unit Description
010	Emergency fire pump diesel engine and ULSD FO storage tank.

NSPS APPLICABILITY

1. NSPS Subpart IIII Applicability: The emergency fire pump diesel engine is an Emergency Stationary Compression Ignition Internal Combustion Engine (ICE) and is subject to 40 CFR 60, Subpart IIII. It shall comply with 40 CFR 60, Subpart IIII only to the extent that the regulations apply to the emissions unit and its operations (e.g. fire pumps, horsepower, and model year selected).
   [40 CFR 60, Subpart IIII – NSPS Stationary Compression Ignition ICE]

EQUIPMENT SPECIFICATIONS

2. Equipment: The permittee is authorized to install, operate, and maintain one model year 2009 (or later) fire pump diesel engine with a rating less than 300 horsepower (hp) and an associated nominal 500 gallon ULSD FO storage tank.

EMISSIONS AND PERFORMANCE REQUIREMENTS

3. Hours of Operation: The fire pump may operate in response to emergency conditions and 80 non-emergency hours per year for maintenance testing.
   [Applicant Request and Rule 62-210.200 (PTE), F.A.C.]

4. Authorized Fuel: This unit shall fire ULSD FO (or superior fuel), which shall contain no more than 0.0015% sulfur by weight. The permittee shall maintain a file of the certified fuel sulfur analyses from the fuel vendor containing the most recent 5 years of records.
   [Rules 62-210.200(PTE) and 62-212.400 (BACT), F.A.C.]

5. Fire Pump Diesel Engine BACT Emission Limits in grams per brake horsepower-hour (gm/bhp-hr):

Size (hp)	Model Year	CO	SO_2	NMHC*+NO_X	PM
175 $\leq$ hp < 300	$\geq$ 2009	2.6	ULSD FO	3.0	0.15

   * Non-Methane Hydrocarbons (NMHC) are surrogate for VOC.

   {The NMHC+NO_X and PM BACT limits are equal to the values corresponding to the size class indicated above and cited in 40 CFR 60, Subpart IIII.}

6. Compliance, Testing and Certification Requirements: The permittee shall adhere to the compliance testing and certification requirements listed in 40 CFR 60.4211 and maintain records demonstrating use of ULSD FO.
   [Rule 62-212.400 (BACT), F.A.C. and 40 CFR 60.4211]

C. Safe Shutdown Diesel Electric Generator

This section of the permit addresses the following emissions unit.

ID	Emission Unit Description
011	Diesel electric generator for safe shutdown of Unit 4 and ULSD FO storage tank.

NESHAPS APPLICABILITY

1. NESHAP Subpart ZZZZ Applicability: The safe shutdown generator is a Liquid Fueled Reciprocating Internal Combustion Engine (RICE) subject to 40 CFR 63, Subpart ZZZZ. The safe shutdown diesel generator is an emergency generator and is subject only to the initial notification requirements of Subpart ZZZZ.
   [40 CFR 63, Subpart ZZZZ – NESHAP for RICE and Rule 62-204.800(11)(b)80, F.A.C.]

NSPS APPLICABILITY

2. NSPS Subpart IIII Applicability: The safe shutdown generator is a Stationary Compression Ignition Internal Combustion Engines (Stationary ICE) and is subject to 40 CFR 60, Subpart IIII.
   [40 CFR 60, Subpart IIII – NSPS for Stationary ICE]

EQUIPMENT SPECIFICATIONS

3. Equipment: The permittee is authorized to install, operate, and maintain a nominal 750 kW diesel electric generator and an associated nominal 1000 gallon ULSD FO storage tank.
   [Applicant Request and Rule 62-210.200(PTE), F.A.C.]

EMISSIONS AND PERFORMANCE REQUIREMENTS

4. Hours of Operation: The safe shutdown generator may operate as needed with 200 non-emergency hours per year for maintenance testing. [Applicant Request and Rule 62-210.200(PTE), F.A.C.]

5. Authorized Fuel: This unit shall fire ULSD FO (or superior fuel), which shall contain no more than 0.0015% sulfur by weight. The permittee shall maintain a permanent file of the certified fuel sulfur analysis from the fuel vendor. [Rules 62-210.200(PTE) and 62-212.400 (BACT), F.A.C.]

6. Safe Shutdown Generator BACT Emissions Limits in gm/bhp-hr and (gm/kW-hr):

Size (kW)	Model Year	CO	SO_2	$NMHC+NO_X$	PM
560 < kW ≤ 2237	≥ 2006	2.6 (3.5)	ULSD FO	4.8 (6.4)*	0.15 (0.20)

   * Non-Methane Hydrocarbons (NMHC) are surrogate for VOC.

   {The $NMHC+NO_X$ and PM BACT limits are equal to the values corresponding to the size class indicated above and cited in 40 CFR 60, Subpart IIII.}

7. Compliance, Testing and Certification Requirements: The permittee shall adhere to the compliance testing and certification requirements listed in 40 CFR 60.4211 and maintain records demonstrating use of ULSD FO. [Rule 62-212.400 (BACT), F.A.C. and 40 CFR 60.4211]

D. Unit 4 Cooling Tower (EU 012)

This section of the permit addresses the following new emissions unit.

ID	Emission Unit Description
012	Unit 4 Cooling Tower – consisting of eight cells with eight individual exhaust fans

Equipment

1. Cooling Tower: The permittee is authorized to install one 8-cell linear mechanical draft cooling tower with the following nominal design characteristics: an air volumetric flow rate of 1,004,800 actual cubic feet per minute per cell; cell height of 56 feet; cell diameter of 30 feet; and drift eliminators with a drift rate of no more than 0.0005 percent of the circulating water flow. [Application and Design]

Emissions and Performance Requirements

2. Drift Rate: Within 60 days of commencing commercial operation, the permittee shall certify that the cooling tower was constructed to achieve the specified drift rate of no more than 0.0005 percent of the circulating water flow rate. [Rule 62-212.400(BACT), F.A.C.]

   {Permitting Note: This work practice standard is established as BACT for PM/PM_{10} emissions from the cooling tower. Based on this design criteria, potential emissions are expected to be less than 3 tons of PM/PM_{10} per year.}